

## PROJECT DESCRIPTION

## GENERAL

THIS PORTION OF THE PROJECT INVOLVES THE MODIFICATION OF THE TRAFFIC SIGNAL AT MD 140 (BALTIMORE BOULEVARD) AND CENTER STREET IN CARROLL COUNTY, DUE TO THE SAFETY AND RESURFACING PROJECT ALONG MD 140. LED PEDESTRIAN COUNTDOWN SIGNAL HEADS AND APS EQUIPMENT WILL BE INSTALLED ON THE EAST AND NORTH LEGS OF THE INTERSECTION. VIDEO DETECTION CAMERAS WILL BE INSTALLED FOR PRESENCE DETECTION ON ALL APPROACHES AND NON-INVASIVE MICROLOOP PROBES WILL BE INSTALLED FOR SETBACK DETECTION ON THE EAST LEG. A CONCRETE ISLAND WILL BE INSTALLED ON THE SOUTHEAST CORNER OF THE INTERSECTION. A NEW TRAFFIC SIGNAL CABINET WILL REPLACE THE EXISTING CABINET WHICH IS OUTSIDE THE RIGHT-OF-WAY. MD 140 IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

## INTERSECTION OPERATION

THE INTERSECTION WILL CONTINUE TO OPERATE IN A NEMA SIX-PHASE, FULL TRAFFIC-ACTUATED MODE. THE EXISTING MAIN LINE EXCLUSIVE LEFT TURN PHASING WITH A LEAD/LAG PHASE, THE SIDE STREET SPLIT PHASING AND THE ALTERNATE MAIN LINE PEDESTRIAN PHASE WILL REMAIN. AN ALTERNATE SIDE STREET PEDESTRIAN PHASE IS PROPOSED.

## CONTROLLER REQUIREMENTS

INSTALL A NEMA SIZE "6" BASE MOUNTED CABINET. THE SHA SIGNAL SHOP WILL INSTALL A NEW EIGHT-PHASE FULLY ACTUATED TRAFFIC CONTROLLER WITH ONE (1) 2 WIRE CENTRAL CONTROL UNIT, ONE (1) VIDEO INTERFACE EQUIPMENT, AND 4-FOUR CHANNEL LOOP DETECTOR AMPLIFIERS WITHIN THE CABINET.

## APS WILL FUNCTION AS FOLLOWS:

## NORTH LEG

A. WHEN PEDESTRIAN LOCATES AND PRESSES THE PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT WILL ANNOUNCE THE FOLLOWING MESSAGE: "WAIT TO CROSS CENTER STREET AT BALTIMORE BOULEVARD".  
B. WHEN WALK PHASE BEGINS, THE MESSAGE WILL BE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

## EAST LEG

A. WHEN PEDESTRIAN LOCATES AND PRESSES THE PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT WILL ANNOUNCE THE FOLLOWING MESSAGE: "WAIT TO CROSS BALTIMORE BOULEVARD AT CENTER STREET".  
B. WHEN WALK PHASE BEGINS, THE MESSAGE WILL BE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

## PHONE DROP

THE CONTRACTOR SHALL NOTIFY MR. ROBERT SNYDER OF SHA AT (410) 787-7635 TO ARRANGE FOR THE PHONE DROP LINE INSTALLATION. THE CONTRACTOR IS TO NOTIFY MR. SNYDER WITH THE NEAREST STREET ADDRESS, ZIP CODE AND PHONE NUMBER.

THE CONTACT PERSONS FOR DISTRICT #7/00TS ARE AS FOLLOWS:

Mr. John Conannon  
Assistant District Engineer - Traffic  
Phone: 301-624-8140/8141

Ms. Andrea Abend  
District Utilities Engineer  
Phone: 301-624-8105/8116

Mr. Raymond Johnson  
Assistant District Engineer - Maintenance  
Phone: 301-624-8105/8106

Mr. Richard L. Daff Sr.  
Chief, Traffic Operations Division  
Phone: 410-787-7630

Mr. Edward Rodenhizer  
Chief, SHA Signal Shop  
Phone: 410-787-7650

The Power Company is:  
Baltimore Gas and Electric Company  
7317 Parkway Drive South  
Hanover, Md 21076  
Phone: 410-859-9062

## EQUIPMENT LIST 'A'

EQUIPMENT TO BE FURNISHED BY THE SHA.

CATEGORY CODE	QUANTITY	DESCRIPTION
900000	1 EA	VIDEO DETECTION INTERFACE EQUIPMENT: I-4 CAMERAS
963010	4 EA	4 CHANNEL LOOP DETECTOR AMPLIFIER - RACK MOUNT
971017	1 EA	EIGHT PHASE (FULLY ACTUATED) CONTROLLER AND CABINET - BASE MOUNT
973023	84 SF	SHEET ALUMINUM SIGNS: 1 EA - R4-7 (24 IN. x 30 IN.) KEEP RIGHT SYMBOL 1 EA - M3-2 (30 IN. x 15 IN.) "EAST" 1 EA - M1-5 (48 IN. x 36 IN.) "MD 140" 1 EA - M6-1 (30 IN. x 24 IN.) "HORIZONTAL ARROW" 2 EA - R10-3(I) (9 IN. x 15 IN.) "PUSH BUTTON TO CROSS BALTIMORE BLVD" 2 EA - R10-3(I) (9 IN. x 15 IN.) "PUSH BUTTON TO CROSS CENTER ST" 3 EA - W11-2 (36 IN. x 36 IN.) FY PEDESTRIAN CROSSING 6 EA - M6-2(MOD) (21 IN. x 15 IN.) FY DIAGONAL ARROW 3 EA - OM-1(I) (18 IN. x 18 IN.) FY OBJECT MARKER

## EQUIPMENT LIST 'B'

EQUIPMENT TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

CATEGORY CODE	QUANTITY	DESCRIPTION
120500	1 LS	MAINTENANCE OF TRAFFIC
199020	600 LF	REMOVAL OF EXISTING PAVEMENT MARKINGS - ANY WIDTH
203030	5 CY	TEST PIT EXCAVATION
585621	610 LF	12 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES
585625	180 LF	24 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES
634300	380 LF	STANDARD TYPE A COMBINATION CURB AND GUTTER 12 INCH GUTTER PAN 8 INCH DEPTH
655105	680 SF	5 INCH CONCRETE SIDEWALK
655120	100 SF	DETECTABLE WARNING SURFACE FOR CURB RAMPS
655383	25 SF	BRICK SIDEWALKS
800000	1 EA	2-WIRE CENTRAL CONTROL UNIT
800000	4 EA	ACCESSIBLE PEDESTRIAN PUSHBUTTON
800000	4 EA	LED 16 INCH COUNTDOWN PEDESTRIAN SIGNAL HEAD SECTION - POLE MOUNTED
800000	1 LS	REMOVE AND DISPOSE OF TRAFFIC SIGNAL EQUIPMENT
800000	600 LF	PULL & RE-ROUTE TRAFFIC SIGNAL CABLES
801004	6 CY	CONCRETE FOR SIGNAL FOUNDATION
801104	45 LF	WOOD SIGN SUPPORTS 4 INCH x 4 INCH
801106	71 LF	WOOD SIGN SUPPORTS 4 INCH x 6 INCH
802501	100 LF	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
805115	90 LF	3 INCH SCHEDULE 80 RIGID PVC CONDUIT-BORED
805125	30 LF	2 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED
805135	75 LF	3 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED
805140	30 LF	4 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED
805150	85 LF	3 INCH SCHEDULE 80 RIGID PVC CONDUIT-SLOTTED
805155	40 LF	4 INCH SCHEDULE 80 RIGID PVC CONDUIT-SLOTTED
805160	25 LF	1 INCH LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT FOR DETECTOR SLEEVE
807202	1 EA	METERED SERVICE PEDESTAL
810010	30 LF	ELECTRICAL CABLE I-CONDUCTOR NO.4 AWG - THHN/THWN
810605	6 EA	NON-INVASIVE DETECTOR, 1000 FOOT LEAD IN CABLE
811001	5 EA	FURNISH AND INSTALL ELECTRICAL HANDHOLE
813014	75 SF	INSTALL GROUND MOUNTED SIGN
813015	9 SF	INSTALL OVERHEAD SIGN
816001	4 EA	VIDEO DETECTION CAMERA
816005	3 EA	CONTROL CABLE, 250 FOOT, VIDEO DETECTION CAMERA TO CONTROLLER
816010	1 EA	CONTROL CABLE, 500 FOOT, VIDEO DETECTION CAMERA TO CONTROLLER
818004	4 EA	10 FOOT BREAKAWAY PEDESTAL POLE
837001	1 EA	GROUND ROD - 3/4 INCH DIAMETER X 10 FOOT LENGTH
861104	400 LF	ELECTRICAL CABLE - 2 CONDUCTOR (ALUMINUM SHIELDED)
861105	850 LF	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)
861107	850 LF	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)
862101	575 LF	LOOP WIRE ENCASED IN FLEXIBLE TUBING (NO. 14 AWG)
862102	200 LF	SAW CUT FOR SIGNAL (LOOP DETECTOR)
871202	1 EA	INSTALL CONTROLLER AND CABINET - BASE MOUNT
873001	1 LS	REMOVE AND SALVAGE EXISTING EQUIPMENT

## EQUIPMENT LIST 'C'

EQUIPMENT TO BE REMOVED AND RETURNED TO SHA.

CATEGORY CODE	QUANTITY	DESCRIPTION
971017	1 EA	EIGHT PHASE (FULLY ACTUATED) CONTROLLER AND CABINET - BASE MOUNT

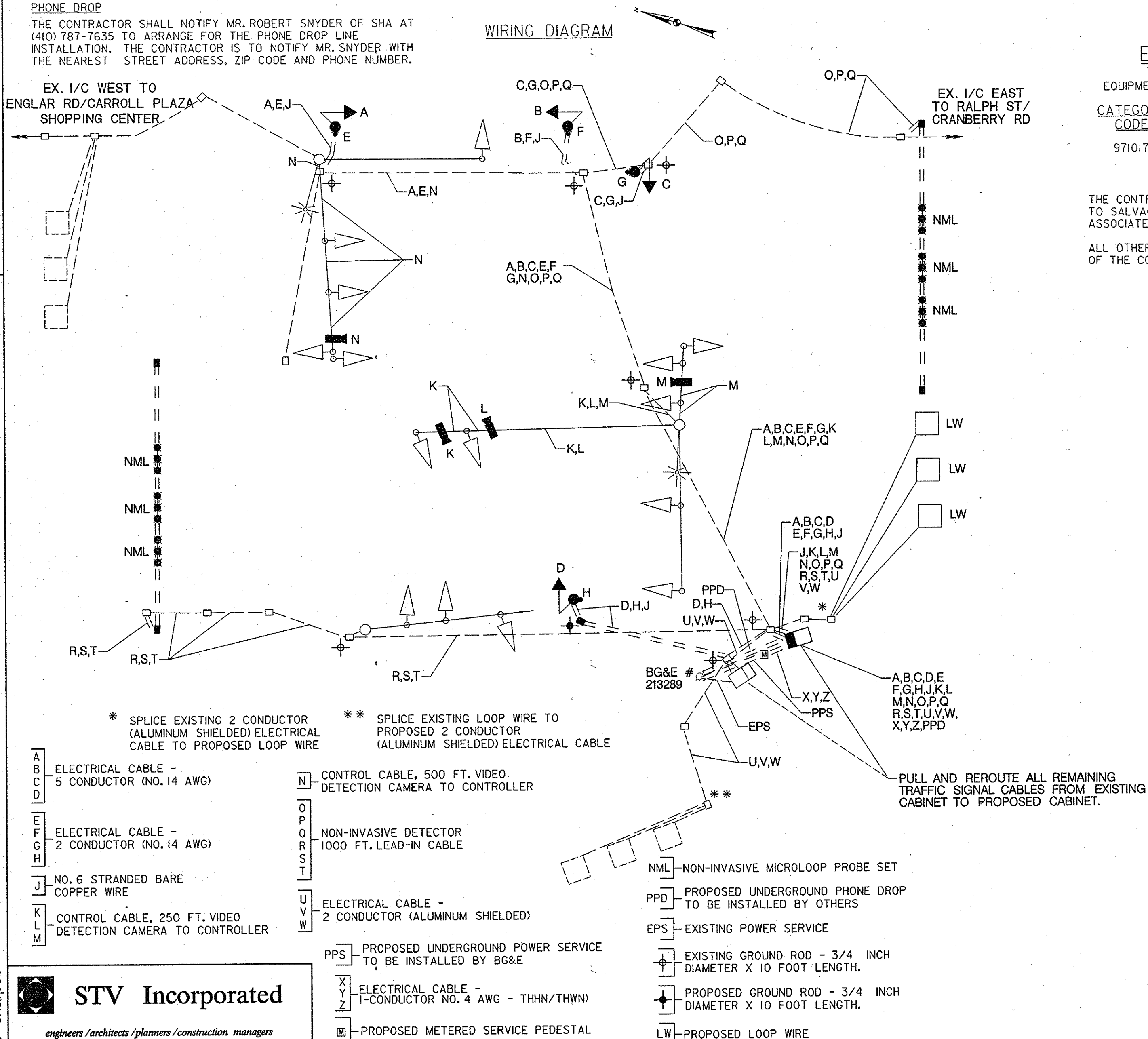
THE CONTRACTOR SHALL CONTACT THE SHA SIGNAL SHOP TO SALVAGE THE EXISTING BASE MOUNTED CABINET AND ALL ASSOCIATED EQUIPMENT.

ALL OTHER REMOVED EQUIPMENT SHALL BECOME THE PROPERTY OF THE CONTRACTOR

## PHASE CHART

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	
PHASE 1 AND 6	+G-	+G-	+G-	G	G	+R-	+R-	R	R	R	R	R	R	R	R	DW	DW	DW	DW	
1 CHANGE	+Y-	+Y-	+Y-	G	G	+R-	+R-	R	R	R	R	R	R	R	R	DW	DW	DW	DW	
PHASE 2 AND 6	+R-	+R-	+R-	G	G	+R-	+R-	G	G	R	R	R	R	R	R	W	W	DW	DW	
PED CLEARANCE	+R-	+R-	+R-	G	G	+R-	+R-	G	G	R	R	R	R	R	R	FLOW	FLOW	DW	DW	
6 CHANGE	+R-	+R-	+R-	Y	Y	+R-	+R-	G	G	R	R	R	R	R	R	DW	DW	DW	DW	
PHASE 2 AND 5	+R-	+R-	+R-	R	R	+G-	+G-	G	G	R	R	R	R	R	R	DW	DW	DW	DW	
2 AND 5 CHANGE	+R-	+R-	+R-	R	R	+Y-	+Y-	Y	Y	R	R	R	R	R	R	DW	DW	DW	DW	
PHASE 3	+R-	+R-	+R-	R	R	+R-	+R-	R	R	G	G	G	G	R	R	DW	DW	DW	DW	
PHASE 3 CHANGE	+R-	+R-	+R-	R	R	+R-	+R-	R	R	Y	Y	Y	Y	R	R	DW	DW	DW	DW	
PHASE 3 ALT	+R-	+R-	+R-	R	R	+R-	+R-	R	R	G	G	G	G	R	R	DW	DW	W	W	
PED CLEARANCE	+R-	+R-	+R-	R	R	+R-	+R-	R	R	G	G	G	G	R	R	DW	DW	FLOW	FLOW	
PHASE 3 ALT CHANGE	+R-	+R-	+R-	R	R	+R-	+R-	R	R	Y	Y	Y	Y	R	R	DW	DW	DW	DW	
PHASE 4	+R-	+R-	+R-	R	R	+R-	+R-	R	R	R	R	R	R	Y	Y	DW	DW	DW	DW	
PHASE 4 CHANGE	+R-	+R-	+R-	R	R	+R-	+R-	R	R	R	R	R	R	Y	Y	DW	DW	DW	DW	
FLASHING OPERATION	FL/RA	FL/RA	FL/RA	FL/Y	FL/Y	FL/RA	FL/RA	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	DARK	DARK	DARK	DARK	

## WIRING DIAGRAM



**STV Incorporated**  
engineers/architects/planners/construction managers  
7125 Ambassador Road Baltimore, MD 21244-2722 (410) 944-9112

<b>SHA</b>		STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF TRAFFIC & SAFETY TRAFFIC ENGINEERING DESIGN DIVISION MD 140 (BALTIMORE BOULEVARD) AT CENTER STREET		
<b>GENERAL INFORMATION 1</b>				
SCALE NONE ADVERTISED DATE 11/2008 CONTRACT NO. CL3365177				
DESIGNED BY SBS		COUNTY CARROLL		
DRAWN BY SBS		LOGMILE 06014008.93		
CHECKED BY BAB CSW		TIMS NO. 1-344		
F.A.P. NO. SEE TITLE SHEET		TOD NO.		
TS NO. 535H-GI-1		DRAWING SG- 8 OF 9		SHEET NO. OF